

1. The reply brief filed 12/26/2007 has been entered and considered. The application has been forwarded to the Board of Patent Appeals and Interferences for decision on the appeal.
2. Responsive to Reply Brief on 12/26/2007, a supplemental Examiner's Answer is set forth below:

Applicants' argument

- A. The "in-plane switching mode" claimed in the present application is a switching mode which has characteristic that the orientation of liquid crystal molecules or optical axis are/is switched in-plane, thereby a wide viewing angle is achieved. However, "the liquid crystal displays having an in-plane switching mode of liquid crystal molecules or optical axis" do not inherently have interdigitated electrode (page 2).
- B. Appellants provided factual evidence in the form of publications by Clark, Patel and Jaegemalm as proof that liquid crystal cells having an in-plane switching mode of liquid crystal molecules or optical axis and achieving a wide viewing angle do not inherently have interdigitated electrodes (page 2-3). Clark, Patel and Jaegemalm prove that liquid crystal cells having an in-plane switching mode do not inherently have interdigitated electrodes. Because liquid crystal cells having an in-plane switching mode do not inherently have interdigitated electrodes, the Examiner's rejection of the claims as anticipated by Kim for the reason "a In-Plane Switching mode liquid crystal cell as [sic has] inherently a group of interdigitated electrodes" is not supportable (page 3). Regardless that

each of Clark, Patel and Jaegemalm describe devices which generate an electric field having a component substantially perpendicular to the surface of a substrate, these devices operate with an in-plane switching mode of liquid crystal molecules or optical axis and do not have interdigitated electrodes (page 4).

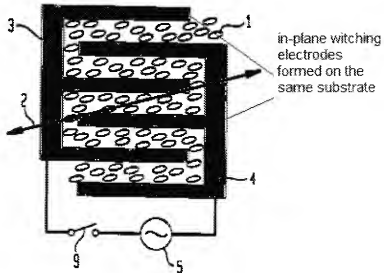
C. Appellants pointed out that Kim does not disclose a further limitation of the presently claimed invention; namely, that the pre-tilt angle of each liquid crystal anchoring direction with respect to a corresponding substrate surface is substantially zero degrees.

Responses:

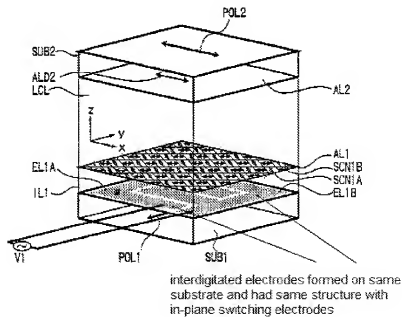
A. Examiner rejected claims 1, 3-7 and 21 with anticipated by Kim et al. (US6091471). Examiner used the fact that structure of in-plane switching electrode of Kim is inherently same with structure of interdigitated electrode of the instant application. Kim mentions only that a liquid crystal display having in-plane-switching (col. 6 lines 32), but Kim does not explicitly show the electrode structure of in-plane-switching mode.

To demonstrate an in-plane switching (IPS) electrodes having an inherent structure of interdigitated electrodes with comb-shape, examiner has further illustrated with the demonstrate references: Held et al. (US6177972) and Broer et al. (US7123319) in Final Action mailed on 10/20/2006.

The demonstrated reference Held et al. (US6177972): IPS electrodes:

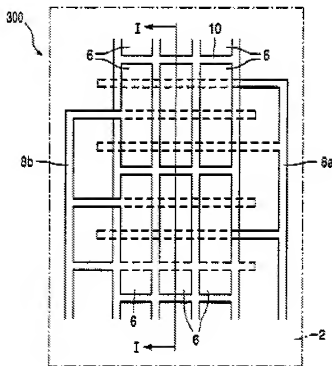


The instant application: Interdigitated electrodes (with fingers of folded hands, see examiner's answer, page 10-11):



The in-plane switching electrodes have inherently same structure with interdigitated electrodes and form on the same substrate.

The demonstrated reference Broer et al. (US7123319) having English PCT filed on Dec 10, 2001 while the instant application having Japanese PCT filed on July 9, 2001, Broer et al is still proper reference to demonstrate the similar of in-plane switching electrode and interdigitated electrode):



Broer et al. disclose "the display laminate 300 has a single substrate 2 provided with a pair of interdigitated electrodes 8a and 8b for in-plane switching the liquid crystal layer 4 (col. 16 line 45-48)" and "in order to increase the area of the liquid crystal layer which can be switched it is convenient to use interdigitated electrodes. In order to be able to switch the liquid crystal layer in-plane the tines of the interdigitated electrodes must be positioned sufficiently close together,

typically 10 μ m. The laminate may contain one pair of interdigitated electrodes per pixel or more than one pair. If the laminate contains support structures electrodes or parts thereof may be buried under such support structures (col. 17 lines 8-16)".

Therefore, an In-Plane Switching mode liquid crystal cell as [sic has] inherently a group of interdigitated electrodes" is totally supported.

B. To demonstrate an in-plane switching electrodes having a non-inherent structure of interdigitated electrodes with comb-shape, applicants have further illustrated with the references: the publications by Clark, Patel and Jaegemalm (again examiner does not use these references as prior art for the 102 rejection).

Examiner holds the position that it is an error to illustrate the in-plane switching mode with Clark, Patel and Jaegemalm. Clark, Patel and Jaegemalm illustrate the liquid crystal display with two electrodes formed on different substrates; however, in-plane switching mode illustrates the liquid crystal display with two electrode formed on the same substrate. Therefore, the in-plane switching mode liquid crystal display cannot form the perpendicular electric field as applicant illustrated in page 4 and first paragraph.

Therefore, examiners still disagreed that Clark, Patel and Jaegemalm disclose the liquid crystal display that operates with an in-plane switching mode.

C. Kim disclose (Fig. 4) the pre-tilt angle of each liquid crystal anchoring direction (col. 5 line 53-55) with respect to a corresponding substrate

surface is substantially zero degrees when photo-energy of ultraviolet light at 6000 mJ/cm (col. 5 lines 30-32).

Applicants do not claims and disclose any technical rubbing treating related to publications of Geary (buffing process for aligning liquid crystals, Seo (used polyimide with different commerce grand) that provide to demonstrate the rubbing pretilt angle of substantially zero degree.

Appellant may file another reply brief in compliance with 37 CFR 41.41 within two months of the date of mailing of this 'supplemental examiner's answer.

Extensions of time under 37 CFR 1.136(a) are not applicable to this two month time period. See 37 CFR 41.43(b)-(c).